



GB04/1671



INVESTOR IN PEOPLE

The Patent Office  
Concept House  
Cardiff Road  
Newport  
South Wales  
NP10 8QQ

**PRIORITY DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH  
RULE 17.1(a) OR (b)

REC'D 27 AUG 2004

WIPO

PCT

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

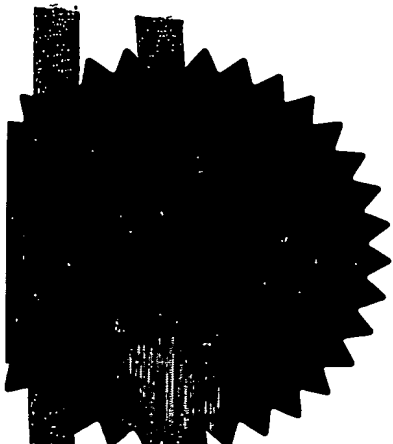
In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Dated

16 August 2004



# Patents Form 1/77

Patents Act 1977  
(Rule 16)



15 APR 03 EB00166-8 002718  
P01/7700 0.00-0508595.8

1/77

## Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

THE PATENT OFFICE  
C

14 APR 2003

LONDON

The Patent Office

Cardiff Road  
Newport  
South Wales  
NP10 8QQ

14 APR 2003

1. Your reference

DAK/P10667GB

2. Patent application number

(The Patent Office will fill in this part)

0308595.8

3. Full name, address and postcode of the or of Nissan Technical Centre Europe Ltd  
each applicant (underline all surnames)

Cranfield Technology Park  
Bedfordshire MK43 0DB  
United Kingdom

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

England and Wales

8380180001

4. Title of the invention

Seat Assembly

5. Name of your agent (if you have one)

David Keltie Associates

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Fleet Place House  
2 Fleet Place  
London EC4M 7ET  
United Kingdom

Patents ADP number (if you know it)

040145020006 ✓

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)

Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (d))

YES

# Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description 17

Claim(s) 4

Abstract

Drawing(s) 4

TF RM

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) 1

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

David Keltie Associates

Date

David Keltie Associates

14 April 2003

12. Name and daytime telephone number of person to contact in the United Kingdom
- Joanne Hopley  
020 7329 8888

## Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

## Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
- Write your answers in capital letters using black ink or you may type them.
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.
- Once you have filled in the form you must remember to sign and date it.
- For details of the fee and ways to pay please contact the Patent Office.

# SEAT ASSEMBLY

The invention relates to a seat assembly for use in a vehicle, and in particular, but not exclusively, to a seat assembly suitable for use by a child. The invention finds particular benefit when employed in vehicles fitted with an airbag on the passenger side of the vehicle.

For babies and very young children, typically up to the age of 18 months, it is recommended for a child seat to be arranged in a rear-facing direction to the direction of travel. Furthermore, it is often desirable for the child seat to be located on the passenger seat of the vehicle, next to the driver, so that the driver has the child in view at all times.

Due to increasing vehicle safety standards it is becoming more common to provide an airbag device on both the passenger side of the vehicle, and on the driver's side. It is recognised, however, that it is not safe to provide an airbag on the passenger side of the vehicle if a rear-facing child seat is to be mounted in the passenger seat.

Car dealers have developed one solution to address this incompatibility, and that is to disable permanently the passenger airbag at the time of vehicle sale if there is a likelihood that the buyer will wish to mount a child seat in the passenger seat. This solution is undesirable, however, as due to the permanent disabling of the passenger airbag it does not then facilitate use of a passenger airbag in the event that no child seat is mounted in the passenger seat and an adult passenger is carried, for example. Furthermore, over the life of a vehicle it is likely that the requirements of the owner, or owners, may change, and there may be times when there is no longer a requirement to carry child passengers. The reverse problem

also occurs if a vehicle does not have the passenger airbag disabled at the time of manufacture, but there later becomes a requirement to use a child seat in the passenger seat.

5 Another proposed solution is to provide the vehicle with a switch for allowing the user to disable or enable the airbag depending on whether a rear-facing child seat is to be used in the passenger seat. This solution is also undesirable, however, due to the risk of inadvertent disabling of the passenger airbag.

10 It is one object of the present invention to provide a seat assembly, suitable for accommodating a child, that seeks to overcome this problem.

According to a first aspect of the present invention there is provided a vehicle car seat assembly providing first and second seat positions for a passenger and  
15 including;

a first seat member and a seat back defining a first seat surface and a first back rest surface, respectively, for the passenger when in the first seat position, and  
20 a second seat member defining a second seat surface for the passenger when in the second seat position, wherein the first seat member is movable relative to the second seat member to define a second back rest surface for the passenger when in the second seat position.

25 In one embodiment, the first seat member is a dual-sided seat member having a first side defining the first seat surface and an opposing side defining the second back rest surface.

Preferably, therefore, pivot means may be provided for permitting the dual-sided seat member to pivot relative to the second seat member, into an inclined position, thus permitting the seat assembly to be moved between the first and second seat positions. The pivot means may include a hinged arrangement.

5

In an alternative embodiment, the first seat member is translatable relative to the second seat member, for example so that the first seat surface and the second back rest surface are defined by the same surface of the first seat member. It is also envisaged that the first seat member may be moved rotatably in order to change seat positions.

10

It is a preferred feature of the invention for the seat assembly to be provided with indication means for providing an indication of whether the seat assembly adopts the first or second seat position for the passenger.

15

Conveniently the first seat member is movable between a generally horizontal position and a generally upright position, and thus the indication means provides an indication of whether the first seat member is generally horizontal or generally inclined to the second seat member.

20

The first seat member preferably forms a part of a front seat assembly of a vehicle mounted adjacent to a driver's seat. Thus, in this embodiment, the first seat surface of the first seat member forms the seat surface that would usually be that upon which the front passenger of the vehicle is seated.

25

Alternatively, the first seat member may form part of a front seat assembly for the vehicle driver.

It is a particularly preferred embodiment of this invention for the first seat position (hereinafter referred to as the 'adult seat position') to be adopted by an adult passenger, and the second seat position (hereinafter referred to as the 'child seat position') to be adopted by a baby or child passenger. As the first seat  
5 member defines both a seat surface for an adult passenger, and a back rest surface for a child passenger, the seat assembly may therefore be considered to be a child seat that is integral with a passenger seat of a vehicle, or in other words an "integrated child seat". The child seat position is provided when the first seat member is moved, for example pivoted or translated, out of its generally  
10 horizontal position into its generally upright position.

The vehicle with which the seat assembly is used is preferably provided with disabling means for disabling automatically a passenger airbag of the vehicle in the event that the second seat position (the child seat position) is provided for the  
15 passenger.

It is a particular advantage of the present invention that, when used in a vehicle provided with a passenger airbag, the indication means can be used to provide a disable signal to a vehicle airbag controller to automatically disable the passenger  
20 airbag function if the second seat position is adopted. It is this second seat position that is particularly suitable to be taken up by a young baby or child as it defines a rear-facing seat position (i.e. a seat position facing away from the front of the vehicle) that is recommended for young children for safety reasons. The seat assembly of the present invention therefore permits active passenger airbags  
25 to be incorporated in vehicles in which it is desirable to carry young children or babies in a rear-facing seat position in the front passenger seat of the vehicle, as it

provides a means for automatically disabling the airbag in circumstances in which a child is the passenger whilst enabling the airbag in other circumstances.

5 In an alternative use of the seat assembly, the first and second seat positions may be suitable for adult passengers, particularly if the seat back is movable out of a generally upright position into a reclined position in which the first back rest surface defines a support surface for the passenger's legs.

10 For example, the seat back may be provided with additional pivot means for permitting said pivotal movement of the seat back, so that it may be reclined to permit the first seat back surface to define a leg support for a passenger when in the second seat position (i.e. a rear facing position).

15 Alternatively the seat back may be foldable or collapsible so as to provide a rear-facing seat position (the second seat position) for an adult as an alternative to an adult forward-facing seat position (the first seat position).

20 In a further preferred embodiment the second seat surface is hidden from view when the seat assembly adopts the first seat position, and may be exposed when the first seat member is moved out of its generally horizontal position into its generally upright position to define the second seat position. The second seat member conveniently forms a part of a base for the seat assembly, but alternatively may be a seat part mounted upon the seat assembly base.

25 In a further preferred embodiment the seat assembly is provided with harness or restraining means for harnessing the passenger in the second seat position, and more preferably the harness means are mounted upon the first seat member.



The seat assembly is also preferably provided with harness or restraining means for the further seat member, such as a conventional vehicle seat belt arrangement.

For example the harness means for the first seat member may include at least a  
5 first harness for harnessing in a cross-body configuration and a second harness for harnessing in a head-to-waist configuration, preferably a V-shaped head-to-waist configuration. Alternatively, the harness means may include a harness for harnessing in a head-to-waist configuration only. Other harness configurations are also envisaged.

10 The seat assembly is preferably provided with adjustment means for adjusting the angle of inclination of at least one of the back rest surfaces so as to accommodate the differing comfort requirements of passengers.

15 The indication means preferably includes a switch arrangement, such as a 'push-to-make' type switch, having first and second switch states, a first switch state corresponding to the first seat member being in its first position and a second switch state corresponding to the first seat member being in its second position.

20 Alternatively, and preferably, the switch arrangement takes the form of a latch arrangement including a first latch member mounted on the dual-sided seat member and co-operable with a second latch member, preferably mounted on a fixed part of the seat assembly such as the second seat member.

25 Thus, when the seat assembly adopts the first seat position, the latch member of the first seat member engages or otherwise co-operates with the latch member on the second seat member, and when the first seat member is pivoted or otherwise

moved relative to the second seat member such that it is inclined at an angle to the second seat member, the latch members are caused to disengage from one another.

- 5 Preferably the latch means take the form of electrical latch means, so that when the first seat member is moved relative to the second seat member out of its generally horizontal position, an electrical connection is broken, said electrical connection being re-established when the first seat member is lowered into its generally horizontal position causing said first and second latch members to  
10 engage.

It is preferable for a latch arrangement to be used, as opposed to an 'on-off' switch, to ensure the switch arrangement remains latched securely when the first seat position is provided, so as to prevent inadvertent disabling of the passenger  
15 airbag if an adult passenger is seated.

According to a second aspect of the invention there is provided a vehicle having a seat assembly in accordance with the first aspect of the invention, and further including;  
20

a passenger airbag provided on a passenger side of the vehicle and,

means for disabling automatically the passenger airbag in the event that said indication means provides an indication that the second seat position of the seat  
25 assembly is provided.

It will be appreciated that the preferred and/or optional features of the first aspect of the invention may be incorporated alone or in appropriate combination within the second aspect of the invention also.

- 5 The present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a seat assembly of a first embodiment of the invention, including an integrated child seat, with the child seat position adopted,

10

Figure 2 is a perspective view of a part of the seat assembly in Figure 1 when providing a seat position for a child,

Figure 3 is a front view of a back rest of the seat assembly part in Figure 2 to illustrate a harness arrangement,

15

Figure 4 is an enlarged view of the harness arrangement shown in Figure 3,

Figure 5 is an enlarged view of latch means of the seat assembly in Figure 1,

20

Figure 6 is a schematic illustration of the control system for an airbag for use in a vehicle provided with the seat assembly of the present invention,

Figure 7 is a side view of a part of the seat assembly in Figure 1, to illustrate a child seat position, and

25

Figure 8 is a top view of a part of the seat assembly in Figure 7 to illustrate a head rest of the seat assembly in further detail.

Figures 1 and 2 show a vehicle seat assembly, referred to generally as 10, incorporating an integrated child seat. It is a function of the seat assembly to provide two different seat positions for passengers, one in which the passenger faces in a forward direction (i.e. towards the front of the vehicle) and one in which the passenger faces in a reverse direction (i.e. towards the rear of the vehicle). It is the forward facing seat position that is intended to be adopted by an adult passenger, and the rear-facing seat position that is intended to be adopted by a child passenger.

The seat assembly 10 includes a seat back 12 defining a back rest surface 14 for an adult passenger and having, at an upper end thereof, a head rest 16 for the passenger's head. At the lower end of the seat back 12, a seat member or base 18 is provided having a cushioned region to define a seat surface 20 enclosed within a surrounding perimeter region 22. The seat base 18 is movable within guide tracks 24 that are mounted on the floor of the vehicle so as to permit movement of the complete seat assembly 10 relative to the vehicle floor in forward and rearward directions, as required by the passenger.

The seat assembly 10 includes an additional seat member 26, commonly referred to as a 'squab', which, in the embodiment of Figure 1, takes the form of a dual-sided or 'reversible' seat member having a first upper surface 28, defined by one side of the seat member 26, and a second lower surface 30, defined by an oppositely facing side of the seat member 26. The upper surface 28 of the dual-sided seat member 26 is fully cushioned and the lower surface 28 includes a

perimeter region 32 (visible only in Figure 2) partially surrounding a cushioned inner area. For the purpose of this document the seat member identified as item 26 will also be referred to as the 'first seat member' and the seat member or base identified as item 18 will be referred to as the 'second seat member'.

5

Suitable pivot means, referred to generally as 34, are provided, as described further below, to permit the dual-sided seat member 26 to be moved between the position shown in Figure 1 (a "second" position), in which it is generally upright, or inclined, relative to the seat base 18, and an alternative position (a "first" position), which is not illustrated in Figure 1, in which the dual-sided seat member 26 is generally horizontal and rests upon or is supported by the seat base 18. When the dual-sided seat member 26 is in the horizontal position (the first position), the upper surface 28 of the dual-sided seat member 26 defines a cushioned seating surface for the passenger. Although not readily apparent from the illustration of Figure 1, from the foregoing description of the horizontal position of the dual-sided seat member it will be appreciated why it is appropriate to refer to surfaces 28 and 30 as 'upper' and 'lower' surfaces respectively.

10  
15

For the purpose of this specification, reference to a seat member being "generally upright" shall be taken to mean that the seat member is inclined at an angle to the horizontal that is suitable for the seat member to define a back rest surface for an adult or child passenger. Furthermore, it is usual for the driver or passenger seat base in a vehicle to be slightly inclined to the horizontal for comfort reasons, and reference to a seat member being "generally horizontal" shall be taken include such slightly inclined seat positions that are nonetheless substantially horizontally aligned with the vehicle floor.

20  
25

When the dual-sided seat member 26 is generally upright and inclined at an angle to the seat base 18 (as shown in Figure 1), the lower surface 30 of the dual-sided seat member 26 is facing the back rest surface 14 of the seat back 12. In this position the lower surface 30 defines an alternative, cushioned back rest surface for an alternative, second seat position for a child passenger in which the child faces away from the direction of travel, so as to provide a rear-facing seat position, with the upper surface 28 of the dual-sided seat member 26 facing in the direction of travel.

When the dual-sided seat member 26 is lowered into its generally horizontal position, the perimeter region 32 of the lower surface 30 is supported upon the seat base 18 so that at least the cushioned region of the seat base, defining the seat surface 20, is effectively hidden from view. When the seat assembly adopts this position, it is the upper surface 28 of the dual-sided seat member 26 that defines a cushioned seat surface for an adult passenger. In this seat position it will be appreciated that the adult faces in the direction of travel of the vehicle, providing a forward-facing position as in a conventional front passenger seat.

The seat assembly of the present invention therefore offers two seat positions; a first position (referred to as the "adult seat position") in which the dual-sided seat member 26 defines a seat surface 28 for an adult passenger, and a second position (referred to as the "child seat position") in which the dual-sided seat member 26 defines a back rest surface 30 for a child passenger and a lower seat base 18 defines a seat surface 20 for the child.

The means by which the dual-sided seat member 26 pivots relative to the lower seat base 18 to move between the adult and child seat positions is most clearly

illustrated in Figure 2. The pivot means includes first and second identical hinge arrangements 34 of generally known type provided on respective front corners of the seat base perimeter region 22 (i.e. the rearward corners in the orientation shown). The hinge arrangements 34 couple the dual-sided seat member 26 and  
5 the seat base 18 together so as to permit hinged or pivotal movement of the dual-sided seat member 26 relative to the base 18 between its inclined, upright position (as in Figure 1) and its generally horizontal position.

As in conventional seat assemblies for vehicles, the seat back 12 is provided with  
10 an adjustment means 36, in the form of a so-called "recline dial", for permitting the angle of inclination of the seat back 12 relative to the seat base 18 to be adjusted. Typically, such adjustment means permits the seat back 12 to be moved between a first position in which it is substantially vertically inclined to the seat base 18 and a fully reclined position in which the seat back 12 is almost in  
15 horizontal alignment with the seat base 18.

As illustrated most clearly in Figures 3 and 4, the dual-sided seat member 26 is also provided with restraining or harness means in the form of first and second harness straps 38, 40 to ensure the child passenger is safely restrained when  
20 seated in the child seat position. The first harness strap 38 is generally of a cross-body type and the second harness strap 40 is generally of a head-to-waist type, arranged in a generally V-like configuration. The second strap 40 passes through a central loop 42 through which the cross-body strap 38 also passes. Each of the two ends of the second strap 40 terminates in a clip or male fastener part 42 (only  
25 one of which is shown, in Figure 4) that is detachably connectable with a female fastener part 44 securely fixed to the perimeter region 32 of the dual-sided seat member 26. Harness means of the aforementioned type are generally known in

the vehicle seat restraining systems, and the method by which the fastener parts 42, 44 detach and connect would be familiar to a person skilled in this technology field.

- 5 The seat assembly is also provided with restraining or harness means (not shown) for the adult passenger when in the adult seat position. Typically the adult harness means may take the form of a conventional vehicle seat belt apparatus, as is commonly used.
- 10 As seen most clearly in Figure 5, the dual-sided seat member 26 and the seat base 18 are provided with co-operable parts of a switch arrangement in the form of latch indication means (identified generally as 46 in Figure 2) for providing an indication of whether the dual-sided seat member 26 is in its raised, generally upright, inclined position or its lowered, horizontal position. In Figure 5, the seat
- 15 assembly adopts the adult seat position with the dual-sided seat member 26 substantially horizontal. A first latch member 48, in the form of a projection, extends downwardly from the lower surface 30 of the dual-sided seat member 26 to engage or otherwise co-operate securely with a second latch 50 member provided on the seat base 18 (not shown in Figure 5). Also shown in Figure 5 is
- 20 similar adjustment means to the recline dial 36 of the seat back 12, in the form of a second recline dial 37, for permitting the angle of inclination of the dual-sided seat member 26 relative to the seat base 18 to be adjusted.

The first and second latch members 48, 50 are typically electrically co-operable

25 with one another. When the first and second latch members 48, 50 are engaged with one another in the adult seat position (i.e. with the dual-sided seat member 18 horizontal, as shown in Figure 5), an electrical connection is made to define a



first switch state. The electrical connection between the first and second latch members 48, 50 is broken (a second switch state) when the dual-sided seat member 26 is raised out of the horizontal position to define the child seat position. As illustrated in Figure 6, upon breaking the electrical connection of the latch means 46 an indication signal is provided to an airbag control system or unit 52 to indicate that the dual-sided seat member 26 is raised and, hence, the child seat position of the assembly is adopted. In such circumstances a control signal 54 is provided to disable a passenger airbag 56 of the vehicle. A signal 58 may also be provided from the passenger airbag 56 to the airbag control system 52, for example to inform the airbag control system 52 of airbag status.

If reconnection between the first and second latch members 48, 50 is established upon the dual-sided seat member 26 being lowered into the horizontal position (i.e. the adult seat position), the airbag control system 52 provides a control signal 54 to enable functioning of the passenger airbag 56.

It is one benefit of the present invention, therefore, that an automatic means 46, 52, 54 is provided for disabling the passenger airbag 56 in the event that the child seat position is adopted, said means also being configured to automatically enable the passenger airbag 56 in the event that the adult seat position is adopted.

As an alternative to providing latching indication means, a less complex switch arrangement may be provided, for example an 'on/off' switch or a 'push-to-make' type switch.

Referring to Figure 7, it is another feature of the invention that both the cushioned region of the seat base 18 defining the seat surface 20 for the child seat position and the cushioned region of the dual-sided member 26 defining the back

rest surface 30 for the child seat position are formed from polystyrene balls, which, when a child 27 is seated, mould to the shape of the child's body to provide comfortable, cushioned back rest 30 and seat 20 surfaces for the child's body. This also is of benefit in reducing the load applied to the occupant during impact. As shown in Figure 8, which is a top view of a child's head 60 with the seat assembly 10 in the child seat position, a head end 26a of the dual-sided seat member 26 is generally cupped in shape so as to provide a means of support for the child's head 60 in rolling, side-to-side movement, as indicated by arrow 62. It will be appreciated that when the dual-sided seat member 26 is lowered into the horizontal position (to define the adult seat position), ears 26 of the head end 26a extend generally downwards and may be accommodated within a slight clearance space above the seat surface 20 of the seat base 18.

Typically, the dual-sided seat member 26, or squab, is an injection moulded component, suitably shaped to co-operate with the seat base 18 when in its first, generally horizontal position to define the first (adult) seat position of the assembly.

In a second, alternative embodiment to that described previously, the seat assembly 10 may be adapted to provide first and second adult seat positions, one of which is forward facing (as for a conventional passenger front seat) and one of which is rear facing. In one embodiment of a seat assembly offering two adult seat positions, it is necessary for the seat back 12 of Figure 1 to be reclinable into a fully horizontal position, or below-horizontal position, so that the seat back surface 14 provides a leg support surface for the adult passenger when the rear-facing seat position of the assembly is adopted. Thus, when the dual-sided seat member 26 is moved into its inclined, generally upright position, the seat back 12

can be reclined to enable the passenger to take up a seated position with his or her legs supported by the surface 14.

In a third alternative embodiment, again for providing two adult seat positions,  
5 the dual-sided seat member 26 may itself be formed from two hinged seat parts. When the dual-sided seat member 26 is in its generally horizontal position, the two hinged seat parts are aligned together, in a face-to-face configuration, and when the dual-sided seat member 26 is raised into the generally upright position, inclined relative to the seat base 18, one of the hinged seat parts is 'unfolded'  
10 relative to the other, thereby to provide an extension to the length of the seat member 26 shown in Figure 1, and thus providing an elongate back rest surface 30 for the passenger.

The seat assembly of the second and third embodiments of the invention may find  
15 particular use in vehicles intended for carrying several passengers, or in motor homes or the like. For example, it may be desirable to provide a row of seat assemblies of the aforementioned type, each of which is capable of being moved independently between its forward facing and rear facing adult seat positions. In motor-homes, it may be useful to move the seat assembly between its forward and  
20 rear facing adult seat positions depending on whether the motor home is travelling or is temporarily static.

Although the seat member 26 in the foregoing description is pivotal with respect to the seat base 18 to enable switching between the first and second seat  
25 positions, it is also envisaged that the pivot means 34 may be replaced by means for permitting translatory movement of the seat member 26 relative to the seat base 18. In this embodiment, there is no longer a need to provide a dual-sided

seat member, as the same surface of the seat member (i.e. the upper surface 28, as shown in Figure 1) defines the seating surface for the passenger in both the first and second seat positions. Alternatively, a dual-sided seat member 26 may be used that both translates and is pivotal relative to the seat base 18.

5

In a further alternative variation, means for enabling translatory and rotatable movement of the seat base 26 relative to the seat base 18 may be provided to allow the seat member 26 to be moved to define the two different seat positions of the assembly.

10

From the foregoing description it will therefore be appreciated that the seat assembly of the present invention, although providing particular advantages when utilised as an integrated child seat, may also be configured to provide two different adult seat positions.

**CLAIMS**

1. A vehicle car seat assembly providing first and second seat positions for a passenger and including;

5

a first seat member and a seat back defining a first seat surface and a first back rest surface, respectively, for the passenger when in the first seat position, and

10

a second seat member defining a second seat surface for the passenger when in the second seat position, wherein the first seat member is movable relative to the second seat member to define a second back rest surface for the passenger when in the second seat position.

15

2. The seat assembly as claimed in claim 1, wherein the first seat member is a dual-sided seat member having a first side defining the first seat surface and an opposing side defining the second back rest surface.

20

3. The seat assembly as claimed in claim 2, including pivot means for permitting the first seat member to pivot relative to the second seat member so as to permit the seat assembly to be moved between the first and second seat positions.

25

4. The seat assembly as claimed in claim 3, wherein the pivot means includes a hinged arrangement.

5. The seat assembly as claimed in claim 1, wherein the first seat member is translatable relative to the second seat member.

6. The seat assembly as claimed in claim 5, wherein the first seat surface and the second back rest surface are defined by the same surface of the first seat member.

5 7. The seat assembly as claimed in any one of claims 1 to 6, including indication means for providing an indication of whether the seat assembly is in the first or second seat position.

8. The seat assembly as claimed in claim 7, wherein the indication means  
10 includes a switch arrangement.

9. The seat assembly as claimed in claim 8, wherein the switch arrangement is a latch arrangement including a first latch member mounted on the first seat member and co-operable with a second latch member mounted on the second seat  
15 member and whereby, when the seat assembly provides the first seat position, the latch member of the first seat member engages or otherwise co-operates with the second latch member and, when the first seat member is inclined relative to the second seat member to provide the second seat position, the latch members are caused to disengage.

20 10. The seat assembly as claimed in claim 9, including electrical latch means, configured such that when the first seat member is inclined relative to the second seat member to define the second seat position an electrical connection is broken, said electrical connection being re-established when the first seat position is  
25 adopted and said first and second latch means engage.

11. The seat assembly as claimed in any one of claims 1 to 10, wherein the first seat member forms a part of a front seat assembly of a vehicle for mounting adjacent to a vehicle driver's seat assembly, in use.

5 12. The seat assembly as claimed in any one of claims 1 to 11, wherein the first seat position is that adopted by an adult passenger, and the second seat position is that adopted by a child passenger so that the seat assembly has an integrated child seat in which the second seat surface defines a child seating surface and the second back rest surface defines a child back rest surface.

10 13. The seat assembly as claimed in any one of claims 1 to 12, wherein the seat back is arranged to be moveable between a generally upright position and a reclined position, and in which reclined position the seat assembly provides the second seat position for the passenger and the first back rest surface defines a  
15 support surface for the passenger's legs.

20 14. The seat assembly as claimed in claim 13, wherein the seat back includes additional pivot means for permitting pivotal movement of the seat back relative to the first seat member so as to permit the first seat back surface to move into the reclined position.

15. The seat assembly as claimed in claim 14, wherein the seat back is foldable and/or collapsible.

25 16. The seat assembly as claimed in any one of claims 1 to 15, wherein the second seat surface is hidden from view when the seat assembly provides the first seat position.

17. The seat assembly as claimed in claim 16, wherein the second seat member is a base of the seat assembly.

18. The seat assembly as claimed in any one of claims 1 to 17, further comprising harness means for harnessing the passenger in at least one of the first or second seat positions.

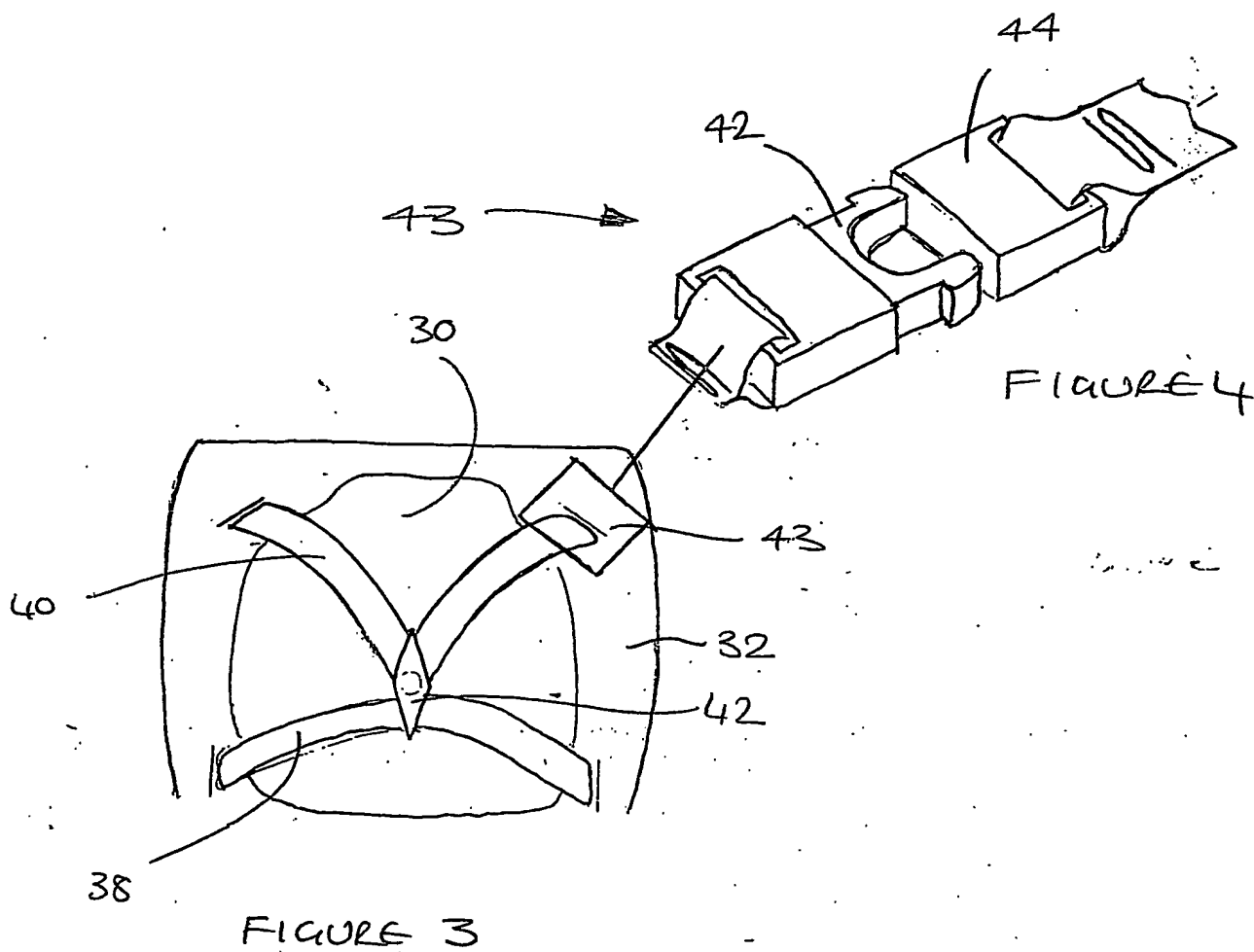
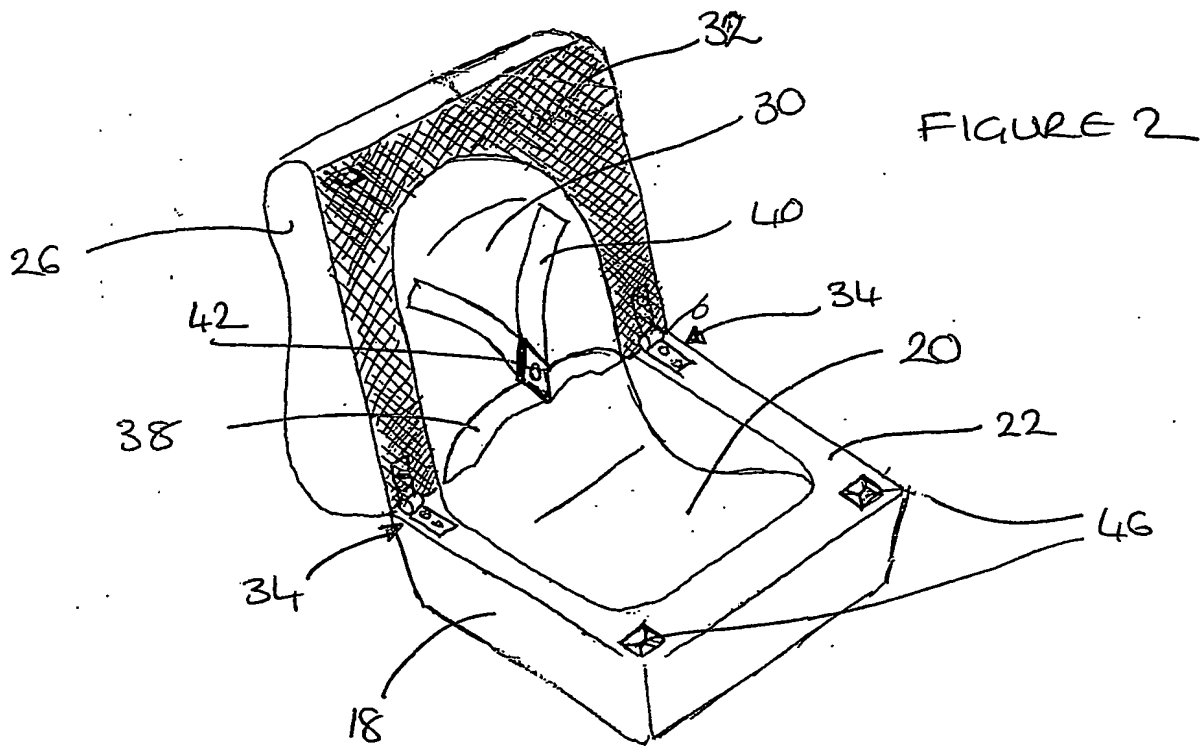
19. The seat assembly as claimed in claim 18, wherein the harness means includes a first harness for harnessing in a cross-body configuration which is co-operable with a second harness for harnessing in a head-to-waist configuration.

20. The seat assembly as claimed in any one of claims 1 to 19, further comprising adjustment means for adjusting the angle of inclination of at least one of the first and second back rest surfaces when either the first or second seat position is provided.

21. A vehicle having a passenger's seat assembly and an airbag provided on a passenger side of the vehicle, wherein the passenger's seat assembly is as claimed in any one of claims 7 to 20, the vehicle further comprising means for automatically disabling the passenger airbag in the event that the indication means provides an indication that the second seat position is provided.







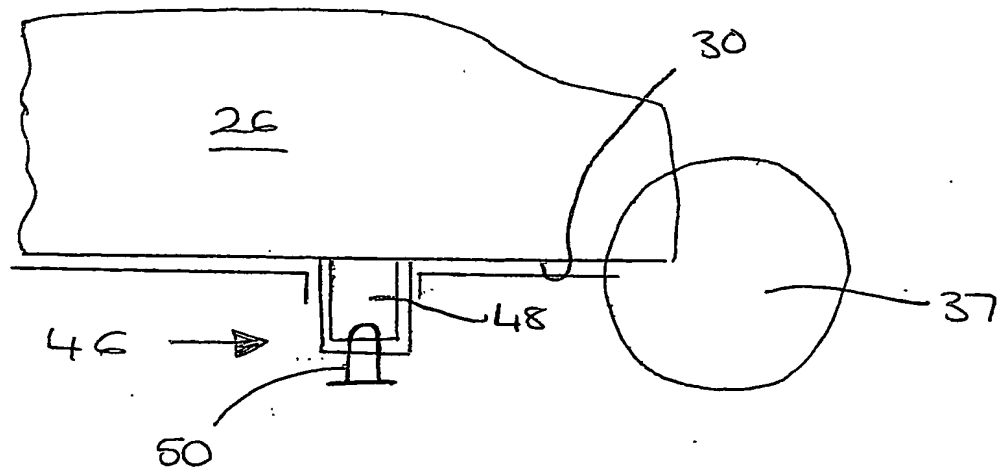


FIGURE 5

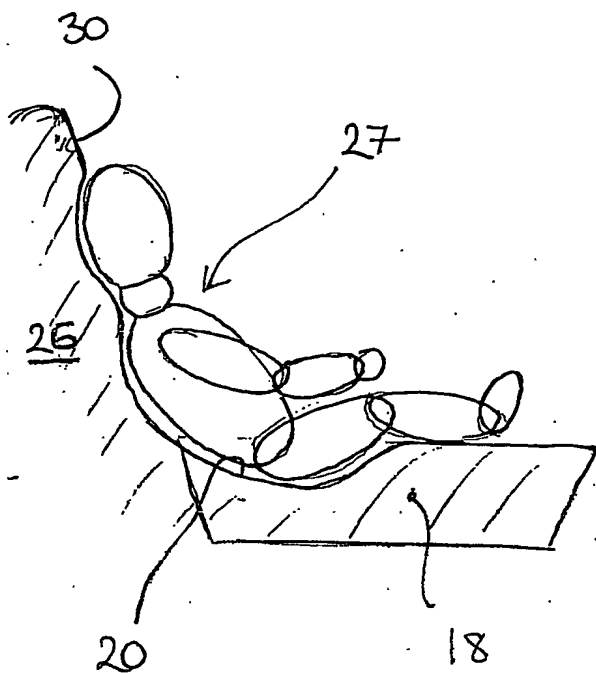


FIGURE 7

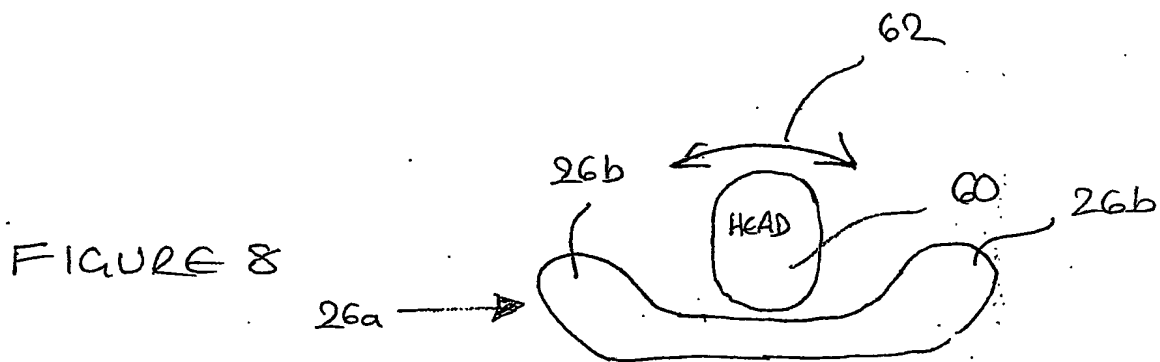


FIGURE 8

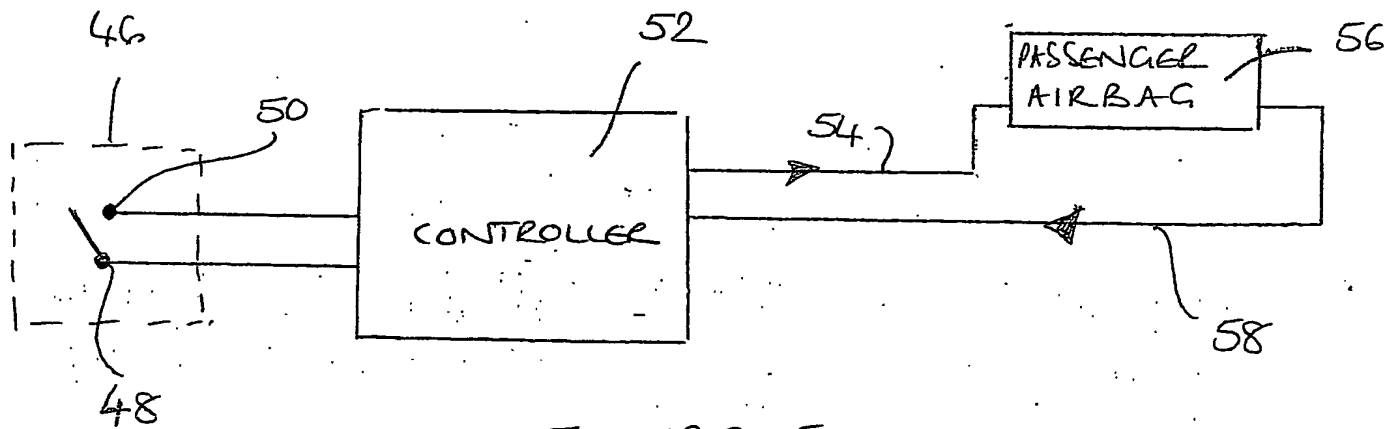
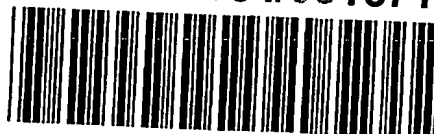


FIGURE 6

16 AUG 2004  
Received in patents  
International Unit

PCT/GB2004/001671



**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☐ FADED TEXT OR DRAWING
- ☒ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**